

WHAT IS CLAIMED IS:

1. A magnetic recording medium including a first underlying film formed on a nonmagnetic substrate and containing a NiTa alloy having a nonmagnetic amorphous structure, and a second underlying film using an alloy containing at least Cr and Ti, further a first magnetic film using a CoCrPt alloy, a nonmagnetic intermediate film containing Ru and a second magnetic film using a CoCrPtB alloy that are serially formed over said first underlying layer, wherein oxygen exists in an interface between said first underlying film and said second underlying film.
2. A magnetic recording medium according to claim 1, wherein said oxygen is locally dispersed in said interface.
3. A magnetic recording medium according to claim 1, wherein a Ti concentration of said second underlying film is 10at% to 15at%, and a Pt concentration of the CoCrPt alloy as said first magnetic film is 3at% to 8at%.
4. A magnetic recording medium according to claim 1, wherein a film thickness of said second underlying film is 5 nm to 15 nm, and a half value width of a locking curve in a (11.0) diffraction peak appearing at an overlapping position of said first and second magnetic films is equal to or less than 8°.
5. A method of manufacturing a magnetic recording medium, comprising the steps of:

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forming a first underlying film formed of a NiTa alloy having a nonmagnetic amorphous structure on a nonmagnetic substrate;

exposing said first underlying film to an oxygen atmosphere wherein a product of an oxygen partial pressure and an exposure time to said oxygen atmosphere from said step of forming said first underlying film to a step of forming a second underlying film is 15 (mPa·sec) to 35 (mPa·sec);

forming said second underlying film formed of an alloy containing at least Cr and Ti on said first underlying film, wherein a Ti concentration of said second underlying film is 10at% to 15at%; and

forming serially a first magnetic film formed of a CoCrPt alloy having a Pt concentration of 3at% to 8at%, a nonmagnetic intermediate film containing Ru and a second magnetic film formed of a CoCrPtB alloy, over said second underlying film.

6. A method of manufacturing a magnetic recording medium, comprising the steps of:

forming a first underlying film formed of a NiTa alloy having a nonmagnetic amorphous structure on a nonmagnetic substrate;

exposing said first underlying film to an oxygen atmosphere wherein a product of an oxygen pressure and an exposure time to said oxygen atmosphere from said step of forming said first underlying film to a step of forming a second underlying film is 20

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(mPa·sec) to 40 (mPa·sec);

forming said second underlying film formed of an alloy containing at least Cr, Ti and B on said first underlying film, wherein a Ti concentration of said second underlying film is 10at% to 15at%; and

forming serially a first magnetic film formed of a CoCrPt alloy having a Pt concentration of 3at% to 8at%, a nonmagnetic intermediate film containing Ru and a second magnetic film formed of a CoCrPtB alloy, over said second underlying film.

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